Part 2 Environmental Resources Information

A. Cultural, Historic, and Archeological Information

(1) and (2) Attachment 27A and Addenda

BMP – identification of any cultural, historic, or known archeological sites within the proposed permit area

(3) Attachment 27A and Addenda

BMP – identification of any cultural, historic, or known archeological sites within the planned subsidence area

(4) Addendum to Page 16, Part 2, Item A(4)

BMP – Potential historic properties that are deemed eligible for listing on the National Register of Historic Places will be identified by the SHPO and noted. As mining progresses, properties to be undermined will be identified and proper mitigative efforts will be implemented.

B. Geology Description

(1) D-425

BMP –characterization of the geology for proposed underground mine area through the use of test bore holes and chemical analyses was conducted by D'Appolonia Consulting Engineers to determine pyritic sulfur, pyrite marcasite, total sulfur, neutralization potential, and clay content of floor shale. Attachment 13 identifies areas which will be affected by surface disturbance and identifies the thickness, acid producing capability toxic producing capability, alkaline producing capability, and the compatibility and erodibility of each stratum.

(1) D-425-1 Addendum to Part 2, Page 16, B(1)

D-425-1: Further description of the geology of the permit application area. To protect the mine and overlying groundwater resources, no longwall operations will occur in areas with less than 200 feet of cover.

C. Ground Water Information

(1), (2), (3), and (5) D-425

BMP – provides a description of the ground water present in the permit area identified through exploration boreholes and an inventory of wells in the vicinity and major aquifers in the area above and below the coal seam. A well inventory was conducted by D'Appolonia in the vicinity of the surface facilities. Well and spring monitoring was conducted. Attachment 14 identifies any wells and springs on the proposed permit area and laboratory analyses of samples from each.

(1), (2), (3), and (5) D-425-1 Attachments 13, 14B and Addenda

BMP – provides additional borehole information conducted by Jack A. Hamilton & Associates and a Test Hole Variance request based upon new and old data. Addendum to Page 17, Item C(1) provides analysis of ground water data provided on Attachment 14C and recommends all wells should be monitored for quantity changes. Attachment 14A provides analytical results for wells and springs.

D. Surface Water Information

(1), (2), (3), and (4) D-425

BMP – identifies watersheds that will receive water discharges from the proposed permit area, perennial and intermittent streams on the proposed permit and adjacent area, and identifies seasonal water quality variations. Attachment 14 identifies upstream and downstream water quality data obtained through water monitoring stations for each non-ephemeral stream that crosses the permit area.

(1), (2), and (3) D-425-1 Addendum to Part 2 Page 18, D

BMP – Attachment 14A and 14D identifies upstream and downstream water quality data obtained through water monitoring stations for each non-ephemeral stream that crosses the permit area..

E. Hydrologic Determination

(1) D-425

BMP – Provides a description of probable hydrologic consequences of the proposed permit area based upon data and information gathered through the geologic, ground water, and surface water surveys.

(1), (2), and (3) D-425-1 Addendum to Part 2, Page 18, Item E

BMP – Moody and Associates contracted to prepare a Probable Hydrologic Consequences report based on data and information from B, C, and D

F. Alternative Water Supply Information

(1) D-425

BMP – Describes the extent to which the proposed operations may result in contamination, diminution, or interruption of an underground or surface source of water and identifies the availability and suitability of alternative water sources.

(1) D-425-1 Addendum to Part 2, Page 18, F(1)

BMP - Describes the extent to which the proposed operations may result in contamination, diminution, or interruption of an underground or surface source of water and identifies the availability and suitability of alternative water sources.

(2) D-425

BMP – Provides a plan for developing an alternative water supply should contamination, diminution, or interruption of an underground or surface source of water develop.

(2) D-425-1 Addendum to Part 2, Page 18 F(2)

BMP – Lists steps to be taken to repair or replace affected water sources in the adjacent area. Cisterns will be repaired after subsidence has been determined complete. Wells will be re-drilled or new wells drilled or connection to a public water supply will be made. Springs will be replaced by a farm pond, drilling of a new well, development of another nearby spring, or connection to a public water system. Damaged farm ponds will be repaired. Interim water supplies may also be provided.

H. Land Use Information

(3) and (4) D-425

BMP – Soil maps and data from a soil survey of Belmont County published by the USDA Soil Conservation Service and a revegetation assessment study by D'Appolonia were used to determine land capability and productivity and the optimal land use for site areas.

(6) D-425

BMP – Following reclamation and abandonment of the permit area, the land will be returned to previously the determined optimal land use through natural succession.

(10) D-425

BMP – Details the plan for achieving the proposed land use. All surface structures will be disassembled and removed and entries will be sealed. The site will be graded, soil covered where necessary, and vegetated in order to provide post-mining land use conditions.

Part 3 Reclamation and Operations Plan

A. General Requirements

(5)(a) D-425

BMP – describes how surface drainage within the permit area is controlled through the use of sediment ponds and the design of the ponds. Ponds are designed to withstand the 10 year/24 hour, with the exception of 2 ponds which OEPA and ODNR granted variance.

(5)(c) D-425

BMP – Areas affected by handling and storage of coal are cleaned of all coal and waste deposits, soil covered and revegetated. Surface water is collected and routed to appropriate sedimentation control facilities.

(5)(f) D-425

BMP – Water pollution control facilities include the system of clean water diversion ditches and disturbed area collector ditches which route water to sedimentation control ponds. The watershed area within the office and mine shaft area, as well as the reclaimed refuse disposal facility, haul roads, access roads, and service roads have

positive drainage towards sedimentation ponds. Diversion pipes beneath the reclaimed refuse embankment is collected in Pond 008 and treated as necessary.

D. Reclamation Plan – General Requirements

(1) D-425

BMP – Final regarding and backfilling will occur upon abandonment of mining activities. This will include dismantling of all surface structures, sealing of the shaft and slope, regrading and reseeding, and the backfilling or breaching of ponds following the establishment of vegetation.

(3) D-425

BMP - Planting will occur during the next appropriate growing season following resoiling. Following completion of grading and backfilling, the disturbed area will be seeded. Major planting will occur following abandonment.

(4) D-425

BMP – The permit area has been backfilled. Soil-stabilized, and graded to minimize erosion.

(5) D-425

BMP – Soil will be stockpiled in an easily accessible area and seeded to prevent erosion.

(6) (a)(b) D-425

BMP – At final reclamation, seeding, fertilizing, and mulching will take place in the 1st growing season following soil covering. The type of seeds, seedlings and fertilizers to be used have been identified.

(7) D-425

BMP – Describes the mulching techniques to be used

(8) D-425

BMP – If a successful stand of vegetation is not established, as determined per ODNR standards, soil testing will be conducted. Adjustments to the soil will be made to promote good stand growth.

(10) D-425

BMP – Acid-forming, toxic-forming, and debris material will transported to an approved off-site disposal facility.

(12) D-425

BMP – Mine openings will be sealed according to attached drawings post-mining.

(13) D-425

BMP – All cored and/or bored holes will be grouted with concrete to within 2 feet of the surface. The surface will be regraded.

(14) D-425

BMP – Fugitive dust will be controlled by applying oiling/wetting agents on all roads or revegetating in disturbed areas.

(15) D-425

BMP – Ponds will be monitored and treated as necessary to meet NPDES limits

(17) D-425

BMP – Reclamation will be completed to be consistent with the character of the surrounding areas by returning the land to its natural state through natural processes.

(18) D-425

BMP – All surface areas will be protected by non-erodible materials or vegetation. Slope stability analysis was performed on the embankment using STABL computer software.

(19) D-425 Plan for minimizing, to the extent possible and using the best technology currently available, disturbances and adverse impacts on fish and wildlife and related environmental values and achieving enhancement of such resources

BMP - Disposal of toxic and acid-forming materials in a controlled manner, limiting surface disturbances, seeding disturbed areas, and returning the area to its natural state all enhance the environment.

(12) D-425-1 Plan for minimizing, to the extent possible and using the best technology currently available, disturbances and adverse impacts on fish and wildlife and related environmental values and achieving enhancement of such resources

BMP – Addendum to Part 3, Page 25 D(12). Longwall mining techniques have caused some creeks to go dry temporarily, but such impacts are restored naturally within a few years. Therefore, impacts to fish are minimized. If surface slips are caused by mining activities, the land will be restored to a condition equal to its original value and foreseeable use. Undeveloped springs will be replaced if they are used according to the

water replacement plan. Room and pillar mining methods will be utilized to undermine the rock overhangs at Ravens Rocks, to eliminate subsidence.

E. Reclamation Plan – Protection of Hydrologic Balance

(1) D-425 (a), (b), (c), and (d)

BMP – (a) Methods employed to ensure the protection of the quality of surface and groundwater water are as follows:

1. Surface drainage and sedimentation control facilities used to minimize adverse effects and maximize control of water..

2. Surface water quality will be monitored bimonthly and following rainfall events of >1 inch. Testing parameters will include pH, specific conductivity, total suspended solids, total iron, total manganese, total sulfate, total acidity, and total alkalinity.

3. Toxic materials will be transported to an approved off-site disposal facility.

4. Groundwater will be monitored in accordance with established monitoring plan.

BMP – (b) The rights of present users will be protected by the collection and treatment of surface water in sedimentation ponds by or chemical treatment. Alternative water supplies will be provided, if necessary.

BMP – (c) (d) Surface and groundwater flow will be monitored to determine any variation in flow to protect the quantity of water available. If the quantity of water cannot be protected, alternative water supply sources will be provided.

(2), (3), (4) D-425

BMP – Surface run-off controlled is controlled through the use of a system of diversion and collection ditches, culverts, and sedimentation ponds. The permit area will be graded towards the ponds. Roads are graded towards gutters and ponds. Diversion ditches route all storm runoff from unaffected areas to Piney or Captina Creek or to the original stream. Runoff from affected areas around the mine shafts and coal handling facilities is diverted to ponds. The sedimentation ponds generally provide sufficient retention time for the effective treatment of groundwater and surface water drainage to meet all effluent limitations identified in the NPDES permit. Areas within the mine office, parking lot, and bathhouse areas are maintained.

(5) D-425 (same as D-425-1 Part 3, Section F )

BMP – The ODNR groundwater and surface water monitoring plans will be followed for the collection, recording, and reporting of surface and groundwater quality date.

(1), (2), and (3) D-425-1 Addendum to Part 3, Page 26, E(1-3)

BMP – The hydrologic balance is expected to change minimally due to longwall mining. The rights of present users of surface and groundwater will be maintained according to the water replacement plan found in Addendum to Part 2, Page 18 F(2). Acid and toxic drainage are not expected to be a problem.

F. Diversions (D-425)

(1) and (2) D-425

BMP - Diversion ditches will be used to divert surface run-off around the mine office and storage area, the refuse disposal area, the office-supply yard area, and in the coal loading facilities. These diversion ditches will direct overland flow away from affected areas.

F. Ground Water and Surface Water Monitoring Plan (D-425-1)

(3) Addendum to Part 3, Page 26, F(3)

BMP - Ground Water Monitoring Plan: All developed, used groundwater supplies will be monitored quarterly for quality and quantity for at least 1 year prior to and after full recovery mining. Weekly quantity monitoring will be conducted whenever the longwall face is within 3 weeks of undermining the supply, with no less than 3 weekly pre and post-mining measurements taken. Groundwater supplies within 500 feet of the active panel will be monitored as if they are located on the panel and will be monitored for at least 1 year subsequent to full recovery.

BMP – Surface Water Monitoring Plan: Various surface water locations will be sampled monthly for flow and quarterly for quality. Each surface monitoring station will be monitored for at least one year prior to and after full recovery mining. Quarterly Monitoring Reports (QMR) will be submitted.

K. Subsidence Control Plan (D-425-1)

(1) Addendum to Part 3, Page 28, K(1)

BMP – After mining occurs in an area, personnel will examine the mining areas for land damage and a determination will be made as to whether the damage resulted from full recovery mining. Damage determined to be caused by full recovery mining will be repaired as soon as possible after discovery. A mitigation plan will be submitted within 30 days of discovery and determination that the slip is mining related. That time frame

will be expedited if significant environmental harm is possible, or public safety is compromised. If stream base flow does not return naturally within 5 years, cracks will be filled manually.

(4) Addendum to Page 29, Item K(4)

BMP – Main entries are designed specifically to provide long-term support of the overlying strata. Pillars will be designed for the maximum overburden on the property. Barrier pillars will be left between the longwall panels and the main entries and between rooms and the main entries. Room and pillar mining techniques will be used under certain sensitive portions of the Ravens Rocks property.

(5) Addendum to Part 3, Page 30, K(5)(c), (e), (g), and (h)

BMP – (c) Subsidence of surface land due to mining slippage, which reduces the value or reasonably foreseeable use of the surface land, will be restored to a condition capable of supporting uses it was capable of supporting before subsidence. Site specific repair or mitigation plans, request for more time to prepare plans, or written notice that restoration measures are not feasible and other mitigation measures will be submitted to the Chief within 30 days. Local contractors will perform the repairs to surface lands. Surface cracks will be repaired as follows: a trench will be made in the crack, topsoil will be segregated from subsoil and rock, material will be compacted using the track of a bulldozer or the wheel of a backhoe, the soil will be replaced, and the area will be seeded. Areas being mined will be inspected at various intervals (daily to weekly). If a problem is found, the landowner will be notified immediately. Most surface cracks will not be repaired until it is determined that the cracks will not close themselves. Cracks found in areas commonly traveled by man or livestock will be repaired immediately. Cracks found in areas not commonly traveled may be marked with brightly colored tape to alert anyone in the area of the opening. If requested by the landowner, fields that have been undermined will be inspected for cracks prior to the introduction of farm equipment. Repairs needed to access fields will be made at appropriate times. Crop lands damaged by subsidence will be repaired at appropriate times to permit cultivation without damage to personnel or equipment.

BMP – (e) Road authorities will be notified at least 6 months prior to undermining. Upon request of the road authority, payment to repair permanently damaged roadways will be made. During subsidence, roads are monitored several times per day. Cracks on gravel roads will be filled as soon as possible. Where offsets on paved roads occur, traffic will be alerted by personnel on the scene. The offsets are excavated and filled with fine gravel. Following subsidence, these areas will be covered with asphalt as soon as possible. Owners of public water lines will be notified at least 6 months prior to undermining. Upon request of the public water line authority, payment to repair

damaged pipelines will be made. Asbestos-concrete water lines will be routinely monitored during subsidence and repaired as soon as possible to restore service. Owners of other utility lines will be notified at least 6 months prior to undermining so that they can take appropriate protective measure.

BMP – (f) After mining, surface structures will be repaired or replaced as required by law or the owner will be compensated for the diminution in value. If repaired, structures will be returned to their pre-mining condition.

BMP – (h) Structures will be monitored if no private agreement with the landowner exists and the Division of Mines and Reclamation determines there is a need for monitoring.